

Claims

1. A method for fabricating an open-porous molded body which is formed from nickel or iron and at least another metal which form solid solutions or intermetallic phases, or on the surface thereof such solid solutions or intermetallic phases are formed,

wherein an open-porous body made of nickel or iron is coated with a metallic powder forming solid solutions or intermetallic phases by means of an organic binder,

subsequently said open-porous body made of nickel or iron is brought into the desired shape with observing minimum bending radii,

then, the organic components are removed in a first thermal treatment step; and

with a second thermal treatment subsequent to said first thermal treatment said open-porous molded body is sintered and said solid solution or said intermetallic phase are formed.

2. A method according to claim 1, characterized in that said organic binder and subsequently said respective metallic powder is deposited upon said surface of said open-porous body made of nickel or iron, and shaping is first performed then.

3. A method according to claim 1 or claim 2, characterized in that pure aluminium powder, aluminium powder containing additional metallic elements or being prealloyed is deposited.
4. A method according to any one of the preceding claims, characterized in that said body made of nickel or iron coated with said binder or said metallic powder is deformed into a hollow cylinder.
5. A method according to claim 4, characterized in that at least two of such said hollow cylinders are joined to each other with respectively adapted outer and inner diameters.
6. A method according to any one of the preceding claims, characterized in that said body made of nickel or iron coated with said binder is deformed in a plurality of layers helically around a longitudinal axis in a wrapped shape.
7. A method according to any one of claims 1 to 6, characterized in that said / said deformed coated body / bodies made of nickel or iron are enclosed by a cylinder forming an outer circumferential surface.
8. A method according to claim 7 or claim 8, characterized in that said outer circumferential surface of said cylinder is perforated.
9. A method according to claim 7 or claim 8, characterized in that a cylinder made of a metal or a ceramic is used.

10. A method according to claim 6,
characterized in that a film also being helically
wrapped is wrapped in between helically wrapped layers.
11. A method according to claim 10,
characterized in that a perforated film is used.
12. A method according to claim 10 or claim 11,
characterized in that a film made of a metal or a
ceramic is used.
13. A method according to any one of the preceding claims,
characterized in that said organic binder having low
viscosity is deposited upon the surface of said open-
porous body by dipping and / or spraying such that the
open pore structure is maintained, and merely the ridges
of said pores are coated.
14. A method according to claim 13,
characterized in that excessive binder is removed by
pressing together, blowing through and / or exhausting
from said body made of nickel or iron.
15. A method according to any one of the preceding claims,
characterized in that during and / or after the
application of said metallic powder said body made of
nickel or iron is set into vibration.
16. A method according to any one of the preceding claims,
characterized in that an open-porous body made of nickel
or iron is used which has a maximum thickness of 100 mm
in a reference plane prior to coating and shaping.
17. A method according to any one of the preceding claims,
characterized in that during the first thermal treatment

step a minimum temperature of 250 °C is achieved, and this is maintained over a period of time of at least 15 min.

18. A method according to any one of the preceding claims, characterized in that during the second thermal treatment a minimum temperature of 600 °C is maintained over a period of time of at least 15 min.
19. A method according to any one of the preceding claims, characterized in that in addition at least one further metal in powdery form is added to said respective metallic powder.
20. An open-porous molded body fabricated with a method according to any one of the claims 1 to 19, characterized in that it is formed from nickel or iron and a metal in the form of a solid solution or as an intermetallic phase, or said surface is formed as such a layer from these said solid solutions and said intermetallic phase, respectively; and said molded body comprises at least curved areas with observing minimum bending radii.
21. A molded body according to claim 15, characterized in that it has been formed from at least one generally plate-like, open-porous body made of nickel or iron obtained by subsequently shaping.
22. A molded body according to claim 20 or claim 21, characterized in that it is formed in shape of a hollow cylinder.
23. A molded body according to claim 22, characterized in that at least two hollow cylinders

telescoped into one another are forming said molded body.

24. A molded body according to claim 20 or claim 21, characterized in that it has a helical shape formed around a longitudinal axis.
25. A molded body according to any one of claims 20 to 24, characterized in that said porosity varies starting from said inside longitudinal axis radially outwardly step by step or in a graded form.
26. A molded body according to any one of claims 20 to 25, characterized in that it is formed from nickel aluminide or iron aluminide, or is coated with it on its surfaces.
27. A molded body according to any one of claims 20 to 26, characterized in that a minimum porosity of 85% is achieved.
28. A molded body according to any one of claims 20 to 27, characterized in that at least one cylinder forming an outer circumferential surface encloses said open-porous molded body.
29. A molded body according to claim 28, characterized in that said cylinder is perforated.
30. A molded body according to claim 28 or claim 29, characterized in that said cylinder is formed from a metal or a ceramic.
31. A molded body according to any one of claims 20 to 30, characterized in that a separating film is arranged

between layers of a helically wrapped, open-porous molded body.

32. A molded body according to any one of claims 20 to 31, characterized in that said film is formed from a metal or a ceramic.
33. A molded body, according to any one of claims 20 to 32, characterized in that said film is perforated.
34. The use of a molded body according to any one of claims 20 to 33 as a particle filter.